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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/319,678	08/16/1999	ALBERT ESCHENMOSER	514485-3729	3438

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EXAMINER

FRIEND, TOMAS H F

ART UNIT	PAPER NUMBER
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1627

DATE MAILED: 05/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

filed

Application No.

09/319,678

Applicant(s)

ESCHENMOSER ET AL.

Examiner

Tomas Friend

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 22-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

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Detailed Action

Change of Examiner

The examiner of this application has changed from J. Ricigliano to Tomas Friend.

Status of the Application

Receipt is acknowledged of an amendment on 21 February 2002 (Paper No. 20).

Status of the Claims

Claims 1-28 are pending in the present application. Claims 22-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 16.

Response to Restriction and Election of Species with Traverse

Applicant's election with traverse of Group I (claims 1-21) in Paper No. 16 is acknowledged. The traversal is on the ground(s) that [1] all of the claims "*are related to non-helical supramolecular nanosystems, and the examination of one of these groups mandates consideration of the patentable elements in the others. The search would involve such interrelated art that an examination of the entire application can be made without undue burden on the examiner.*" This is not found persuasive because libraries of supramolecular nanosystems, nanosystems containing DNA, nanosystems containing peptides, the synthesis of supramolecular nanosystems, and the use of supramolecular nanosystems would require different classification/subclassification searches, structure searches, and/or different electronic database searches. Libraries of compositions, their syntheses, and their uses in screening, for example

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each fall into different digests in class 435. Protein and DNA compositions fall into classes 530 and 536 and their methods of making may be in class 435 or other classes, depending on the methods used. Consequently, searching all of the claims would be burdensome.

The requirement is still deemed proper and is therefore made FINAL.

Objections to the Claims

1. Claim 14 is objected over the grammatical error "*in any of claims 1, wherein...*"

Claims Rejections – 35 U.S.C. 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (written description).

Applicants claim a generic supramolecular nanosystem and several subgeneric groups in which particular structural or functional aspects are limited. The specification, however, indicates that applicants are in possession of only a supramolecular nanosystem in which the oligomers A and B are both the same pyranosyl-nucleic acid and the "functional unit" is a gold cluster. The specification does not provide examples of or identify any other supramolecular nanosystems possessed by applicants at the time of filing. The disclosed supramolecular nanosystem does not represent the subgeneric or generic nanosystems presently claimed, which may comprise the same or different non-helical oligomers, the pentopyranosyl oligomers containing ribo-, arabino, lyxo, or xylo-pyranosyl nucleic acids, oligomer lengths are 4, 8, 10, 15,

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25, 50, 100, or 500 monomer units, or the functional may be a metal, metal cluster, peptide, redox center, fluorescent label, or a conducting oligomer, for example.

3. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (new matter).

Claim 21 has been amended to recite a supramolecular nanosystem according to any of claims 1-16 wherein oligomers A and B are linked after association. There does not seem to be support for this amendment in the specification and applicant has not specified where support for this amendment can be found. In accordance with MPEP 714.02 applicant should specifically point out support for any amendment made to the disclosure.

Claims Rejections – 35 U.S.C. 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3-9, 11, 12, and 14-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. In claims 1, 3, 6, and 7, it is not clear what degree of helicity is to be included in or excluded from oligomers that are “*essentially nonhelical*” or “*nonhelical*.” For example, is 5% helical to be included and 25% helical to be excluded? Clarification is requested.

B. In claims 1 and 14, the metes and bounds of “*functional units*” are not clear. For example, can any structure be considered a “*functional unit*” even if no specific function is assigned to it (i.e. the function has not been determined). It is also not clear if the functional unit can be the same as or a part of an oligomer. Clarification is requested.

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C. In claim 3, it is not clear if A and B are required to be the same nonhelical oligomer because "*the essentially nonhelical oligomer*" implies a singular oligomer, whereas "*A and B*" implies a plurality of oligomers. Clarification is requested.

D. Claims 4, 8, 14, 16-18, and 20 recite Markush groups preceded by the phrase "*selected from a group containing...*" The use of "containing" is equivalent to the use of "comprising," which is not acceptable language for a Markush listing See MPEP 2173.05(h). This rejection may be overcome by changing the language of the claim to recite "*selected from the group consisting of*" as in present claims 6 and 7.

E. It is not clear how claim 5 further limits claim 3 since all pyranosyl groups must be in either the D- or L- configuration.

F. Claims 6 and 7 recite the limitation "*nonhelical oligomer*" in line 2. There is insufficient antecedent basis for this limitation in the claims.

G. It is not clear how claim 9 further limits claim 3 because a nucleic acid would be understood by one of ordinary skill to contain a nucleobase.

H. In claim 11, it is not clear only one or all of the nucleobases are/is replaced by a chelating agent.

I. In claim 12, the metes and bounds of "*derived from a precursor compound*" are not clear. Any compound can be "*derived from a precursor compound*" so it is not clear how this term further limits claim 11.

J. The typographical error in claim 14 makes the dependency of the claim uncertain.

K. In claim 15, the metes and bounds of "*noble metal*" are not clear. Clarification is requested.

L. In claim 19, the metes and bounds of "*derived from a precursor compound*" are not clear. Any compound can be "*derived from a precursor compound*" so it is not clear how this term further limits claim 14.

M. The use of "*and/or*" in the Markush listing of claim 20 renders the claim indefinite.

N. Claim 20 recites the limitation "*after association*" in line 2. There is insufficient antecedent basis for this limitation in the claim.

O. In claim 20, it is not clear if "*linked*" means covalently attached or if it includes noncovalent linking. Clarification is requested.

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P. In claim 1, the metes and bounds of the phrase "*oligomer B can be determined though its monomers*" are not clear. Page 3 of the specification states that the meaning of the term is "*that the functional unit is addressed, i.e. encoded, by the oligomer. The code is defined by the previously established sequence and nature of the monomers.*" It is not clear, for example, if the monomers, or sequence of monomers, direct B to a location (addressed) or if oligomer B is identified by its monomers (encoded). Clarification is requested.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tomas Friend** at telephone number **(703) 308-4548**. The examiner can normally be reached on Monday, Tuesday, Friday, and Saturday 8:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jyothsna Venkat can be reached on (703) 308-2439. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-2742.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist at (703) 308-1235.

Tomas Friend, Ph.D.
04 May 2002


DR. JYOTHSNA VENKAT PH.D
SUPERVISORY PATENT EXAMINER
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